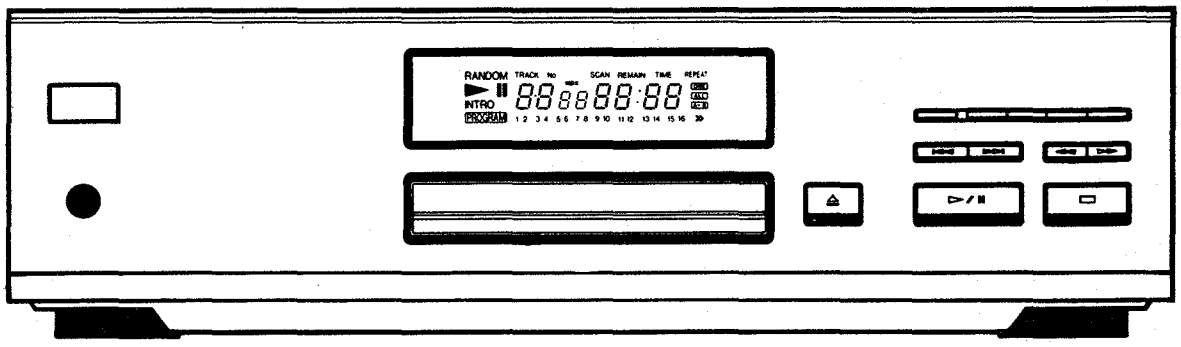
AKAI SERVICE MANUAL



CD-19/29/39/49

COMPACT disc DIGITAL AUDIO

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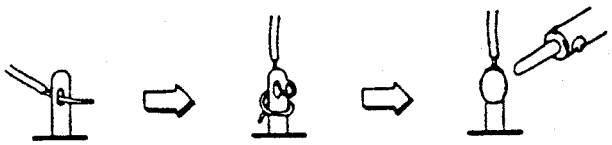
SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts indentified by the ⚠ (*) symbol are critical for safety. Replace them only with the parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with the specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Make sure that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

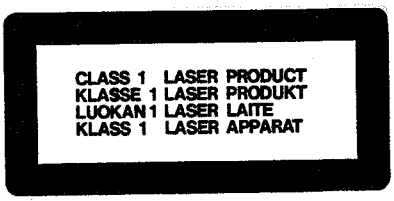
After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 μF capacitor, under the unit's normal working conditions.
The leakage-current should be less than 0.5 mA rms AC. The resistance measurement should be done between accessible exposed metalparts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

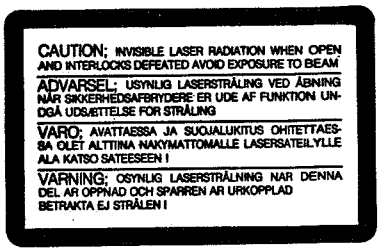
MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can. Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

CLASS 1 LASER PRODUCT

This product contains a low power laser device.
To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product.
Refer any servicing to qualified personnel.
Use actual size stickers.

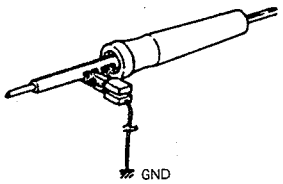



CAUTION; INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED AVOID EXPOSURE TO BEAM
ADVARSEL; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING
VARO; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NAKYMATTOMALLE LASERSATEILYLLE ALA KATSO SATEESEEN !
VARNING; OSYNLIG LASERSTRÅLNING NAR DENNA DEL AR OPPNAD OCH SPARREN AR URKOPPLAD BETRAKTA EJ STRÅLEN !

PRECAUTIONS IN REPAIRING

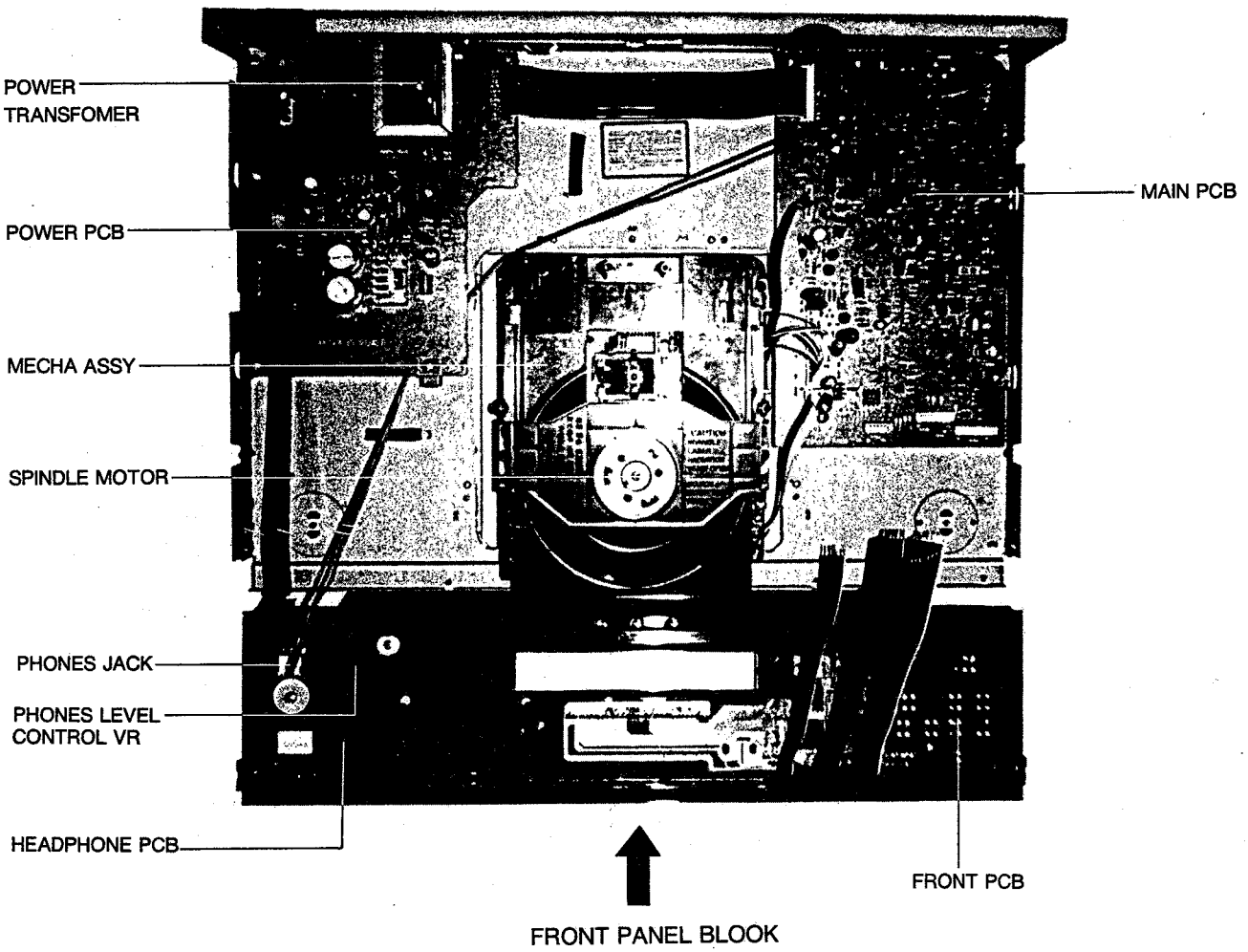
When repairing or adjusting the unit please note the following points.

1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the base is removed for repair or adjustment, make sure that are no metal objects in the narrow gap between the P.C. board or the mecha parts and the base.
3. The Micro-Computer and the CD signal processing ICs can be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration.



4. Do not loosen any screws in the pick-up block. When handling the pick-up block, please refer to the points to NOTE when replacing the pick up block.
5. Keep safety for hazardous invisible Laser Radiation, DO NOT watch the Laser Beam (Objective lens) directly.
6. Models for the some countries, laser warning labels are affixed on the unit and inside of the unit, as shown below.
   Read it carefully for your safety, when repairing or adjusting the unit.

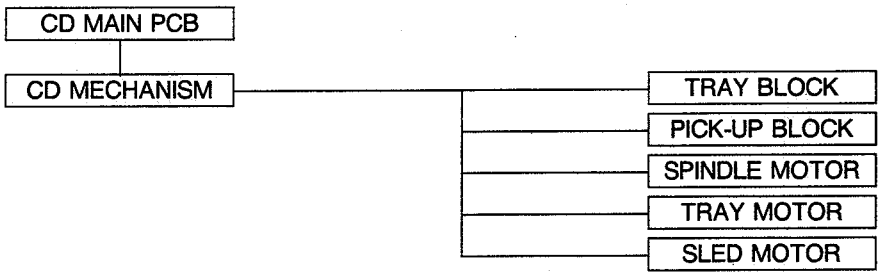
PRINCIPAL PARTS LOCATION



REPLACEMENT OF PRINCIPAL MECHANICAL PARTS

1. CD MECHANISM

1-1. DISMANTLING PROCEDURE OF THE COMPONENTS



1-2. REMOVAL OF THE CD MAIN PCB

Disconnect the four connectors carefully (These are on the main PCB.(Fig. 5-1) . CP101, 102, 103, 104)

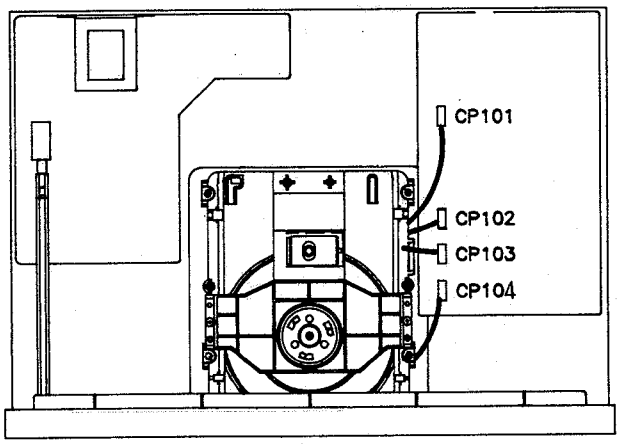


Fig 5-1

1-3. REMOVAL OF THE CD MECHANISM

Remove the four retaining screws, then remove the CD mecha. unit (Fig 5-2)

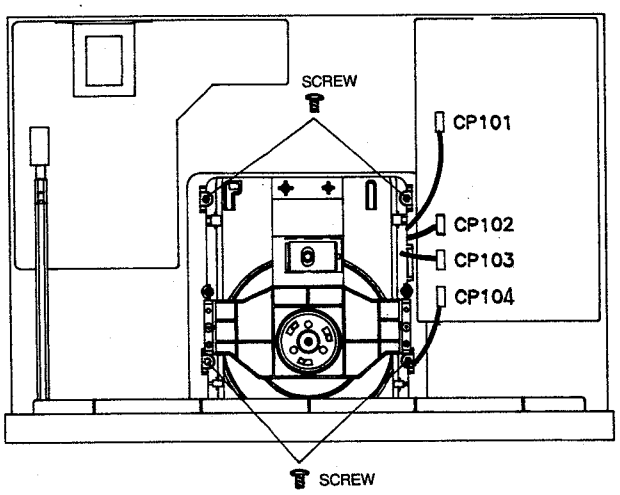


Fig. 5-2

1-4. REMOVAL OF FLAPPER BLOCK

Remove the two retaining screws. (Fig 5-3)

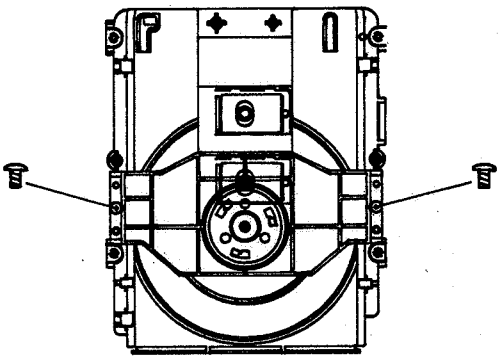


Fig .5-3

1-5. REMOVAL OF TRAY BLOCK

1) Rotate the gear in the direction of the arrow "A" (Fig 5-4).
2) Pull out the tray slowly in the direction of arrow "B". (Fig 5-4)

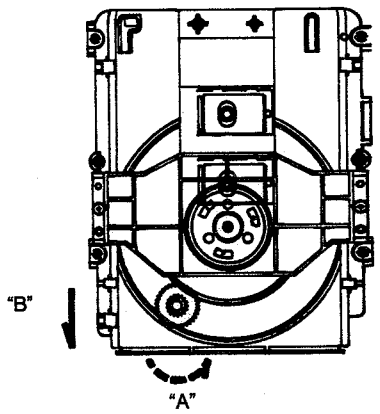


Fig. 5-4

3) Lift the hook "C" up slightly and remove tray. (Fig 5-5)

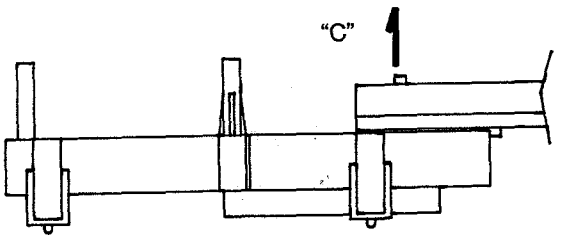


Fig. 5-5

1-6. REPLACEMENT OF THE TRAY MOTORFLAPPER BLOCK

1) Remote the tray belt.
2) Remove the tray motor.
   retainning screws.
3) Remove and replace the tray motor.
4) Reassamble in the reverse order.

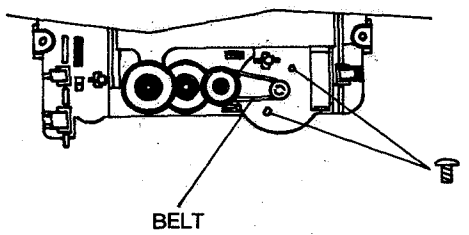


Fig. 5-6

1-7. REPLACEMENT OF THE SLED & SPINDLE MOTOR

1) Remove the four screws and insulator for ASS'Y MECHA FEED
2) Replacement of the spindle & sled motor itself is not recommanded, because the adjustment of the turn table height is quite critical and necessitating the use of a special JIG.
3) Therefor, when need to replace the spindle motor, please replace with a ASS'Y MECHA FEED (FEED MECHA : WW4170DI)

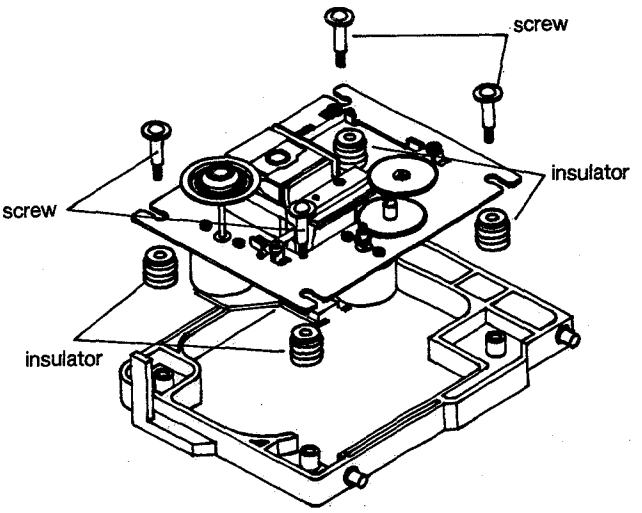
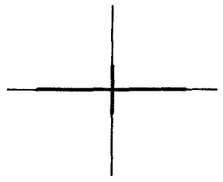


Fig. 5-7

ELECTRICAL ADJUSTMENT

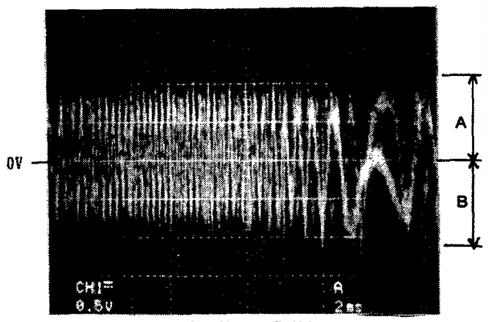
1	Focus Offset Adjustment

- Connect the oscilloscope to TP2(FEO) and TP6(2.5V).
- Load a disc in the player and set the player to stop mo-de.
- Adjust VR101 so that the D. C value of oscilloscope become 0V.

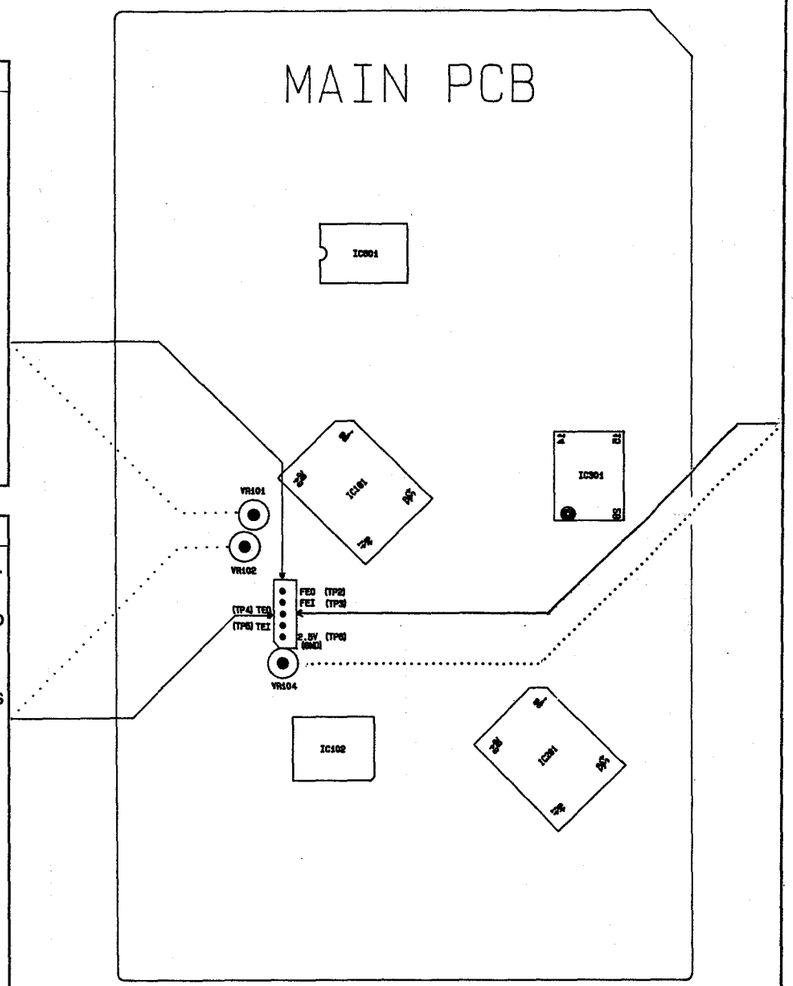


2	Tracking Offset Adjustment

- Connect the oscilloscope to TP4(TE0) and TP6(2.5V).
- Load a disck in the player and set the player to play mode.
  Adjust VR104 so that left max.
- Adjust VR102 so that oscilloscope indicates as shown in A=B.

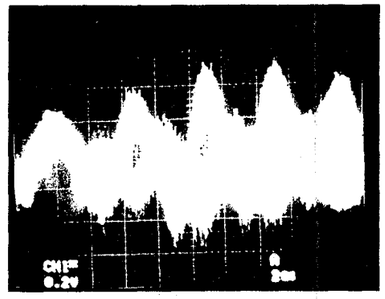


A=B ±0.1V

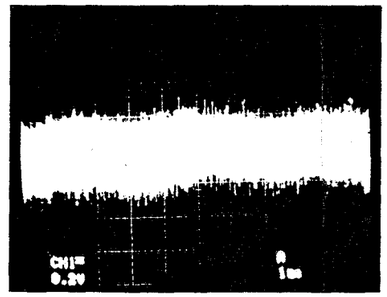


3	Tracking Gain Adjustment

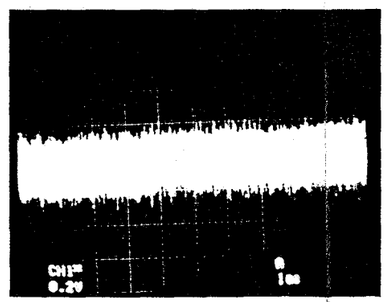
- Connect the oscilloscope to TP4(TEO) and TP6(2.5V).
- Load a disc in the player and set the player to play mode.
- Adjust VR4 so that the wave of oscilloscope becomes flatness.
  (Adjust VR4 from Left max to Right max)



NG:TRACKING GAIN POSITION;MIN(LEFT MAX)



OK:TRACKING GAIN POSITION
(stop the adjustment at the point where the wave starts to be flat.)



NG:TRACKING GAIN POSITION;MAX(RIGHT MAX)

PART LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No, Model No, and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

[NOTE]

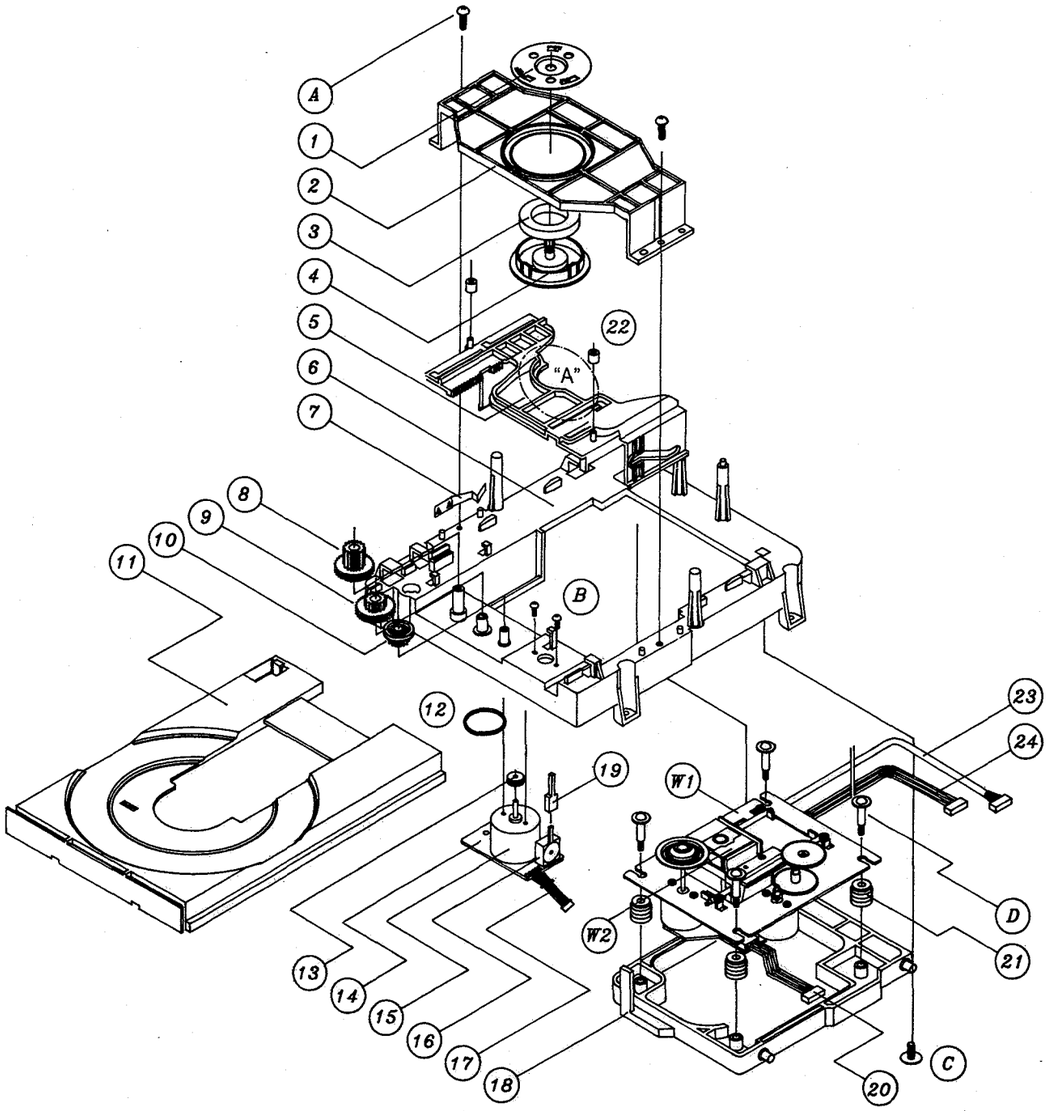
1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.

WARNING

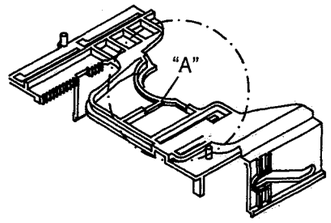
⚠ (*) INDICATED SAFETY CRITICAL COMPONENTS, FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

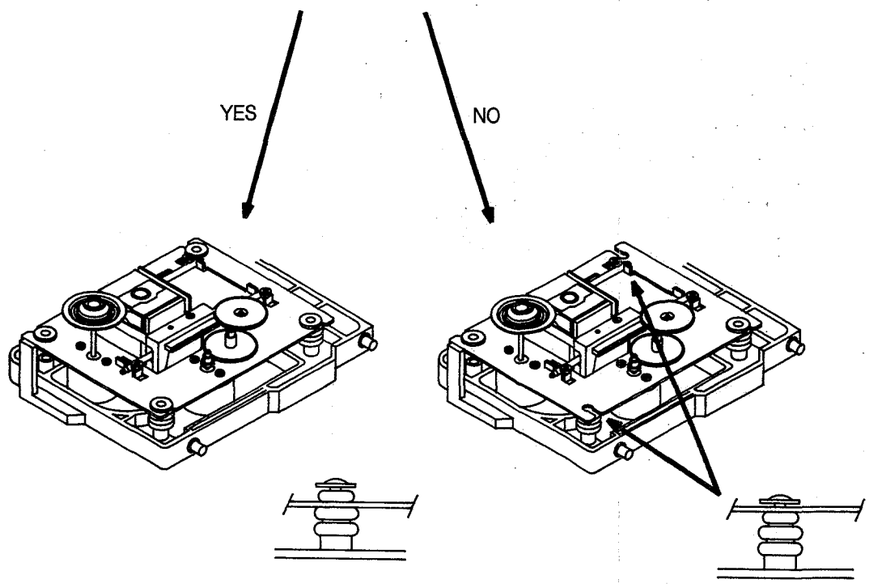
⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉ-CURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.



INSULATOR ASSEMBLING METHOD



GUIDE FRAME'S RIB ("A") IS CUTTED



MECHANISM BLOCK (CD-19/29/39/49)

NOTE:
Part will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

NO	NAME	CODE NO	Q'TY	REMARK
1	PLATE CLAMPER	447000406000	1	
2	FLAPPER	270000036000	1	
3	MAGNET CORE Ⅲ	7600GZ3400L1	1	
4	CLAMPER	433000043000	1	
5	GUIDE FRAME	435000642000	1	
6	MECHA BASE	320000510000	1	
7	SPRING RACK	372000336000	1	
8	GEAR LOAD	247000058000	1	
9	GEAR CENTER	247000045000	1	
10	GEAR PULLEY	247000046000	1	
11	TRAY	460000019000	1	
12	BELT	249000021000	1	
13	PULLEY MOTOR	250000088000	1	
14	PCB MOTOR	702001087000	1	
15	MOTOR TRAY	G70000016000	1	
16	SWITCH LEAF	G22000001000	1	
18	FRAME FEED	321000513000	1	
19	HOLDER S/W	432000214000	1	
21	INSULATOR	124000001000	4	
22	RUBBER STOPPER	438000059000	2	
A	SCREW BH 3*10	B020HF6103B1	2	
B	SCREW BH M 2.6*5	B000HD5051B2	2	
C	SCREW WPH 3*8	1500HZ0780L1	1	
D	SCREW MECHA	150000090000	4	
W1	ASSY FEED MECHA	803800021000	1	
W2	PICK UP	814000010001	1	

MAIN P.C. BOARD

Ref. NO.	Part NO.	Description		
BD601	762000002001	CORE-FERRITE	3.5*9	
CP101	L10153014081	CN. WAFER 2.0MM	53014-0810 8P	
CP102	L10153014081	CN. WAFER 2.0MM	53014-0810 8P	
CP103	L10153014061	CN. WAFER 2.0MM	53014-0610 6P	
CP104	L10153014051	CN. WAFER 2.0MM	53014-0510 5P	
CP105	L14252011111	CN. WIRE TRAP 2.5MM	52011-1110 11P	
CP201	L14152147081	CN. WIRE TRAP 2.0MM	52147-0810 8P	
CP202	L14152147091	CN. WIRE TRAP 2.0MM	52147-0910 9P	
CP203	L14152147051	CN. WIRE TRAP 2.0MM	52147-0510 5P	
CP401	L00001565000	CN, WIRE	3P-510MM (5264-5395)	CD39, 49 only
CP402	L00001565000	CN, WIRE	3P-510MM (5264-5395)	CD39, 49 only
CP403	L00001566000	CN, WIRE	4P-530MM (5264-5395)	
D101	K00041480126	D, SWITCHING	IN4148M-26MM	
D102	K00041480126	D, SWITCHING	IN4148M-26MM	
D103	K00041480126	D, SWITCHING	IN4148M-26MM	
D201	K00041480126	D, SWITCHING	IN4148M-26MM	CD19, 29 only
D202	K00041480126	D, SWITCHING	IN4148M-26MM	CD19, 29 only
IC101	J04292200001	IC, LOGIC-D/A CONVER	KA9220	
IC102	J12792580001	IC, LINEAR-DRIVER	KA9258D	
IC103	J12145580006	IC, LINEAR OP	BA4558D	
IC201	J03192820001	IC, OPTICAL-DSP	KS9282	
IC301	J04217100001	IC, LOGIC-D/A CONVER	PCM1710U	CD39, 49 only
IC303	J12145580006	IC, LINEAR OP	BA4558D	
IC304	J12145580006	IC, LINEAR OP	BA4558D	
IC450	J12145600002	IC, LINEAR OP	IR3F02/NJM4560D	
IC601	J04074000001	IC, LOGIC	HD74HC00P/GD74HC00	
JK301	G60102013000	TER, RCA 2PIN	JB0201300N (W/GND PLATE)	
L101	D33010070020	COIL, FILTER-INDUCTOR	10UH-Q40/24M-R2.5-26MM	
L102	D33010070020	COIL, FILTER-INDUCTOR	10UH-Q40/24M-R2.5-26MM	
L201	D3301R070000	COIL, FILTER-INDUCTOR	1UH-Q40/150M-R0.8 26MM	CD39, 49 only
L301	D33010070020	COIL, FILTER-INDUCTOR	10UH-Q40/24M-R2.5-26MM	CD39, 49 only
L401	D33010070020	COIL, FILTER-INDUCTOR	10UH-Q40/24M-R2.5-26MM	
L601	D33010070020	COIL, FILTER-INDUCTOR	10UH-Q40/24M-R2.5-26MM	
OPJK1	840000098000	ELEC ASSY	CDL3611/OPTICAL TRANSMITE	
Q101	J5001270Y005	SEMI, TR/GE PNP 2SA	KTA1270Y, 0.5W/T092-REEL	
Q112	J5023202Y000	SEMI, TR/GE NPN 2SC	KTC3202Y, 0.6W/T092-REEL	
Q113	J5001270Y005	SEMI, TR/GE PNP 2SA	KTA1270Y, 0.5W/T092-REEL	
Q350	J6000144W001	SEMI, BRT/PNP RA	DTA144WS, 0.3W/T092M-REEL	CD19, 29 only
Q351	J6000144W001	SEMI, BRT/PNP RA	DTA144WS, 0.3W/T092M-REEL	
Q352	J6020143T001	SEMI, BRT/NPN RC	DTC143TS, 0.3W/T092M-REEL	
Q353	J6020143T001	SEMI, BRT/NPN RC	DTC143TS, 0.3W/T092M-REEL	
Q354	J6020143T001	SEMI, BRT/NPN RC	DTC143TS, 0.3W/T092M-REEL	CD19, 29 only
Q355	J6020143T001	SEMI, BRT/NPN RC	DTC143TS, 0.3W/T092M-REEL	CD19, 29 only
VR101	C54647200210	VR, SEMI M. GLAZE-MOLD	4.7KB-6.0H3P, 0.3W-100V	
VR102	C54622300210	VR, SEMI M. GLAZE-MOLD	22KB-6.0H3P, 0.3W-100V	
VR104	C54622300210	VR, SEMI M. GLAZE-MOLD	22KB-6.0H3P, 0.3W-100V	
XT201	E80016R93401	CRYSTAL	16.934400MHZ (SUNNY)	CD19, 29 only
XT301	E80016R93401	CRYSTAL	16.934400MHZ (SUNNY)	CD19, 29 only

HEAD PHONE P.C. BOARD

Ref. NO.	Part NO.	Description		
CP451	L10252670301	CN. WAFER 2.5MM	5267-03A 3P	CD39, 49 only
CP452	L10252670301	CN. WAFER 2.5MM	5267-03A 3P	CD39, 49 only
CP453	L10252670401	CN. WAFER 2.5MM	5267-04A 4P	
HP450	G40206403051	JACK, D6.5	KUNMING/HTJ-06403DG05	
VR401	C45512530001	VR, ROTARY 16MM	RK16K12A0002-50KB*2 (GS)	CD39, 49 only

POWER P.C. BOARD

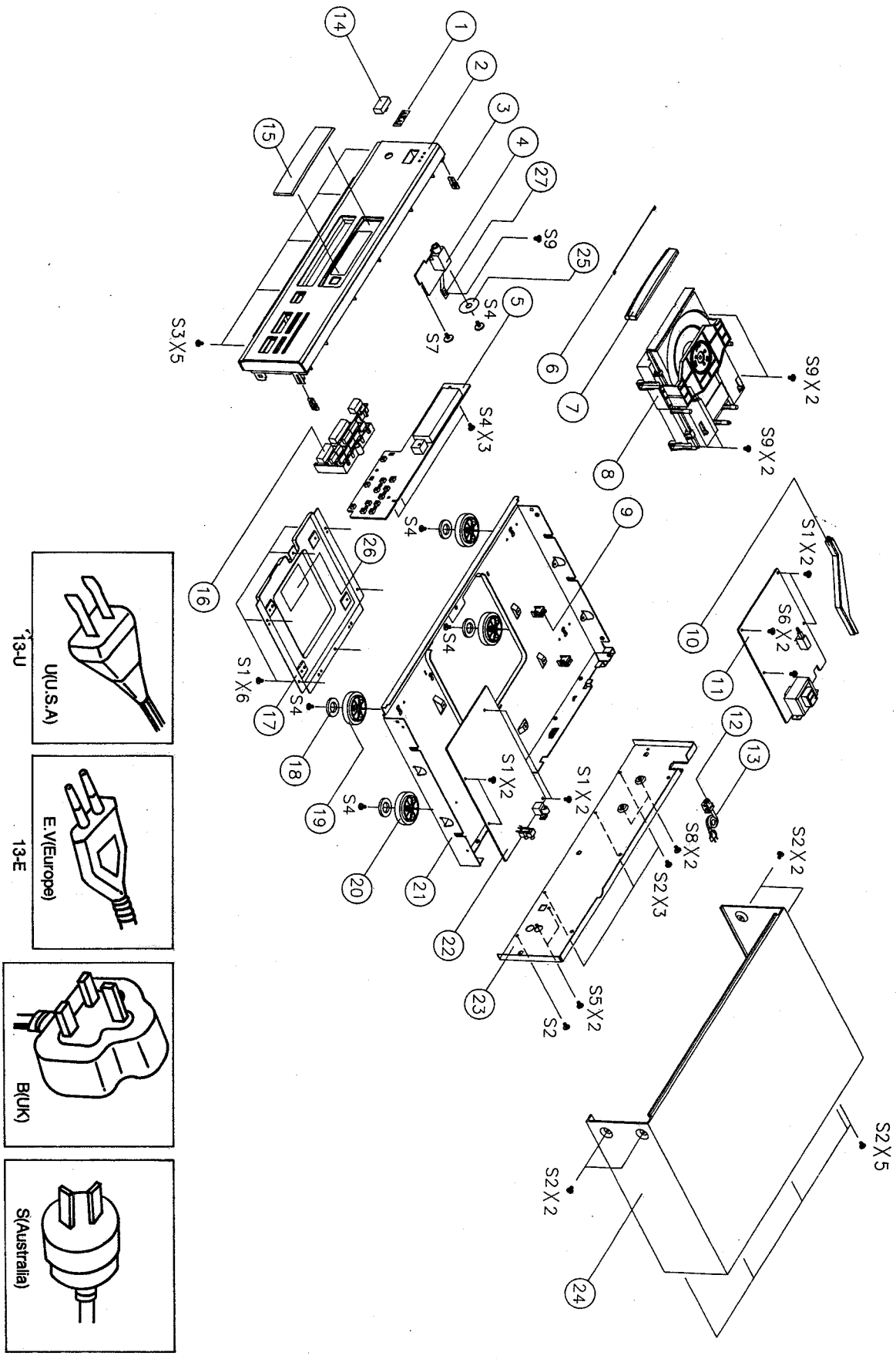
Ref. NO.	Part NO.	Description	
C503	D04047208400	C, ELECT GE 85C	4700UF-M/25V, 18*35.5S.BLK
C504	D04022208400	C, ELECT GE 85C	2200UF-M/25V, 16*25-S.BLK
CP501	L00001423000	CN, WIRE	11P-200MM (FLAT WIRE)
CP501	L11251052110	CABLE, HOLDER 2.5MM	51052-1100 11P
CP502	L10835310200	CN. WAFER 7.92MM	35328-0280 2P
D501	K04040020000	D, RECTIFIER 1N	IN4002-BULK
D502	K04040020000	D, RECTIFIER 1N	IN4002-BULK
D503	K04040020000	D, RECTIFIER 1N	IN4002-BULK
D504	K04040020000	D, RECTIFIER 1N	IN4002-BULK
D505	K00041480126	D, SWITCHING	IN4148M-26MM
D506	K00041480126	D, SWITCHING	IN4148M-26MM
D507	K00041480126	D, SWITCHING	IN4148M-26MM
D508	K00041480126	D, SWITCHING	IN4148M-26MM
D509	K06005R61426	D, ZENER	MTZ5.6B-0.5W/20MA-26MM
D510	K00041480126	D, SWITCHING	IN4148M-26MM
D511	K00041480126	D, SWITCHING	IN4148M-26MM
D512	K06024R01426	D, ZENER	MTZ24B-0.5W/5MA-26MM
D513	K06006R21426	D, ZENER	MTZ6.2B-0.5W/20MA-26MM
D514	K06005R11426	D, ZENER	MTZ5.1B-0.5W/20MA-26MM
IC501	J12678080002	IC, LINEAR-REGULATER	GS7808
IC502	J12678050002	IC, LINEAR-REGULATER	GL7805/DBL7805
PS501	G00015300001	SW, PUSH	PN-BL153
PT501	820048002601	POWER TRANS	CD39-2300(48MM) MV4821Y1
Q501	J5001270Y005	SEMI, TR/GE PNP 2SA	KTA1270Y, 0.5W/T092-REEL
Q502	J5001266Y005	SEMI, TR/GE PNP 2SA	KTA1266Y, 0.6W/T092-REEL
Q503	J5001266Y005	SEMI, TR/GE PNP 2SA	KTA1266Y, 0.6W/T092-REEL

FRONT P.C. BOARD

Ref. NO.	Part NO.	Description	
CP801	L00001567000	CN, WIRE	5P-160MM (2877#26), 2.0TYP
CP801	L11151048051	CABLE, HOLDER 2.0MM	51048-0500 5P
CP802	L00001568000	CN, WIRE	8P-170MM (2877#26), 2.0TYP
CP802	L11151048081	CABLE, HOLDER 2.0MM	51048-0800 8P
CP803	L00001569000	CN, WIRE	9P-170MM (2877#26), 2.0TYP
CP803	L11151048091	CABLE, HOLDER 2.0MM	51048-0900 9P
FL801	K53000022000	DISPLAY, FLT	10BT-151GK-II
IC801	J02082616102	IC, CPU MICRO PROCESS	CXP82616-102Q
IC802	J12570420001	IC, LINEAR-RESET	KIA7042P 4.2V TYP
RM801	E94000005000	MODULE, REMOCON	MM-001E
S801	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S802	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S803	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S804	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S805	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S806	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S807	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S808	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S809	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S810	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S811	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
S812	G18000027000	SW, TACT	SKHV10910A 160G/5MM REEL
XC801	E8304R100000	RESONATOR, CERMIC	CST4.19MGW (4.19MHZ)

FINAL ASSEMBLY (CD-19/29)

NOTE:
Part will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

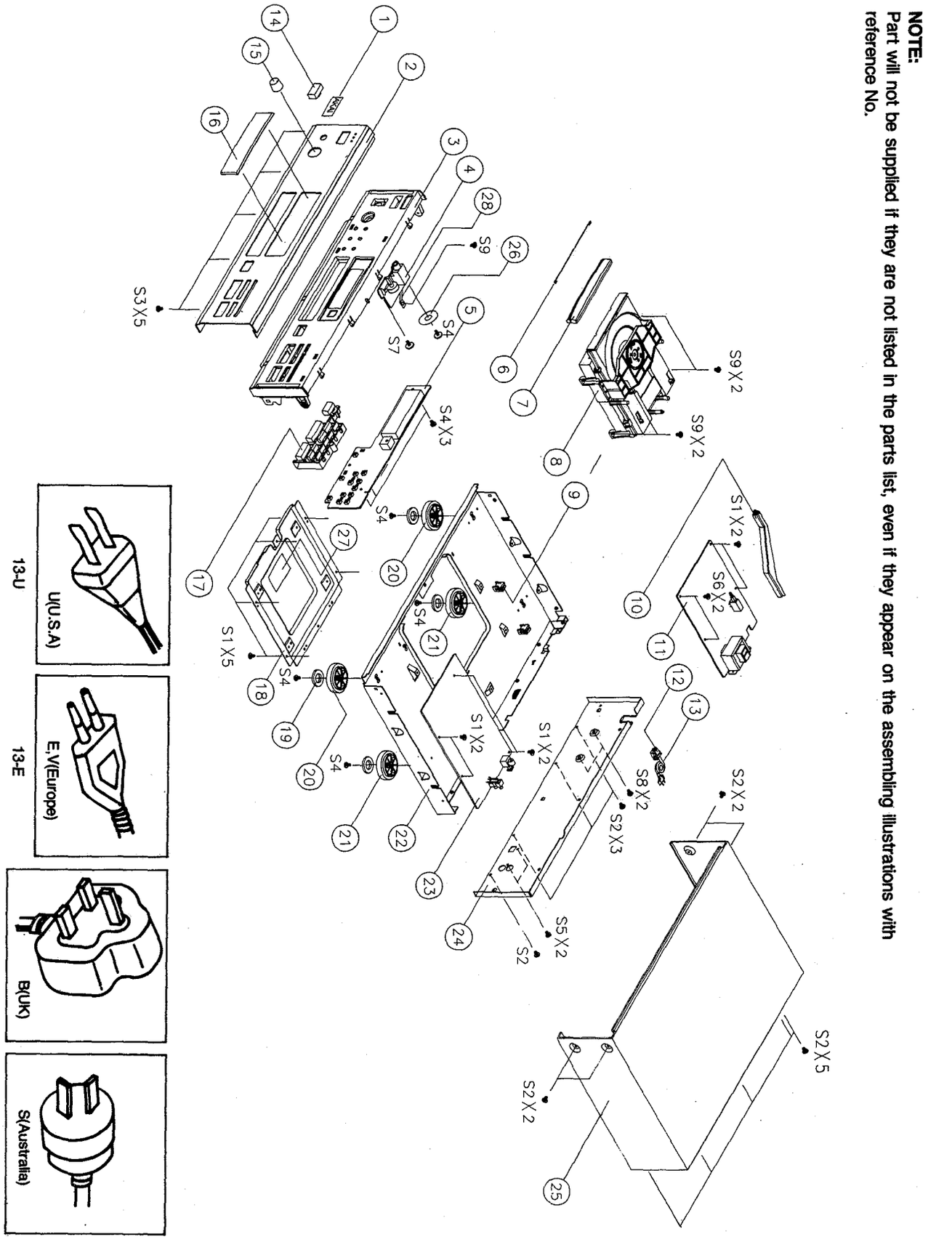


FINAL ASSEMBLY (CD-19/29)

NO	PART NO	Q'TY	DESCRIPTION
1	563000039000	1	BADGE(AKAI)
2	306700203000	1	PANEL FRONT(CD-19)
	306700202000	1	PANEL FRONT(CD-29)
4	702801575000	1	PHONE PCB ASS'Y
5	702801572000	1	PHONT PCB ASS'Y
6	470000003000	1	RING TRAY
7	431700183000	1	COVER TRAY
8	803800022000	1	BASE MECHA ASS'Y
11	702801568000	1	POWER PCB ASS'Y
12	438000014000	1	STOPPER AC CORD
13-E	L06100080000	1	AC CORD, KKP-419C
14	509001329000	1	BUTTON POWER
15	507000423000	1	WINDOW DISPLAY
16	509700004000	1	BUTTON FUNCTION
18	405000225000	4	FELT
19	400000075000	2	FOOT
20	400000055000	2	FOOT
22	702801565000	1	MAIN PCB ASS'Y
24	431000388000	1	COVER UPPER
S1	B020HF6081B1	12	SCREW, TAP BH
S2	B020HF6083B1	13	SCREW, TAP BH
S3	B020HF6083F1	5	SCREW, TAP BH
S4	B020HF6101B1	8	SCREW, TAP BH
S5	B020HF6083F1	2	SCREW, TAP BH
S6	B020HF6171B1	2	SCREW, TAP BH
S7	1500HZ6081W1	1	SCREW, WASHER
S8	1500HZ8083L1	2	SCREW TRANS
S9	B010HC6061B0	5	SCREW TAP BH

FINAL ASSEMBLY(CD-39/49)

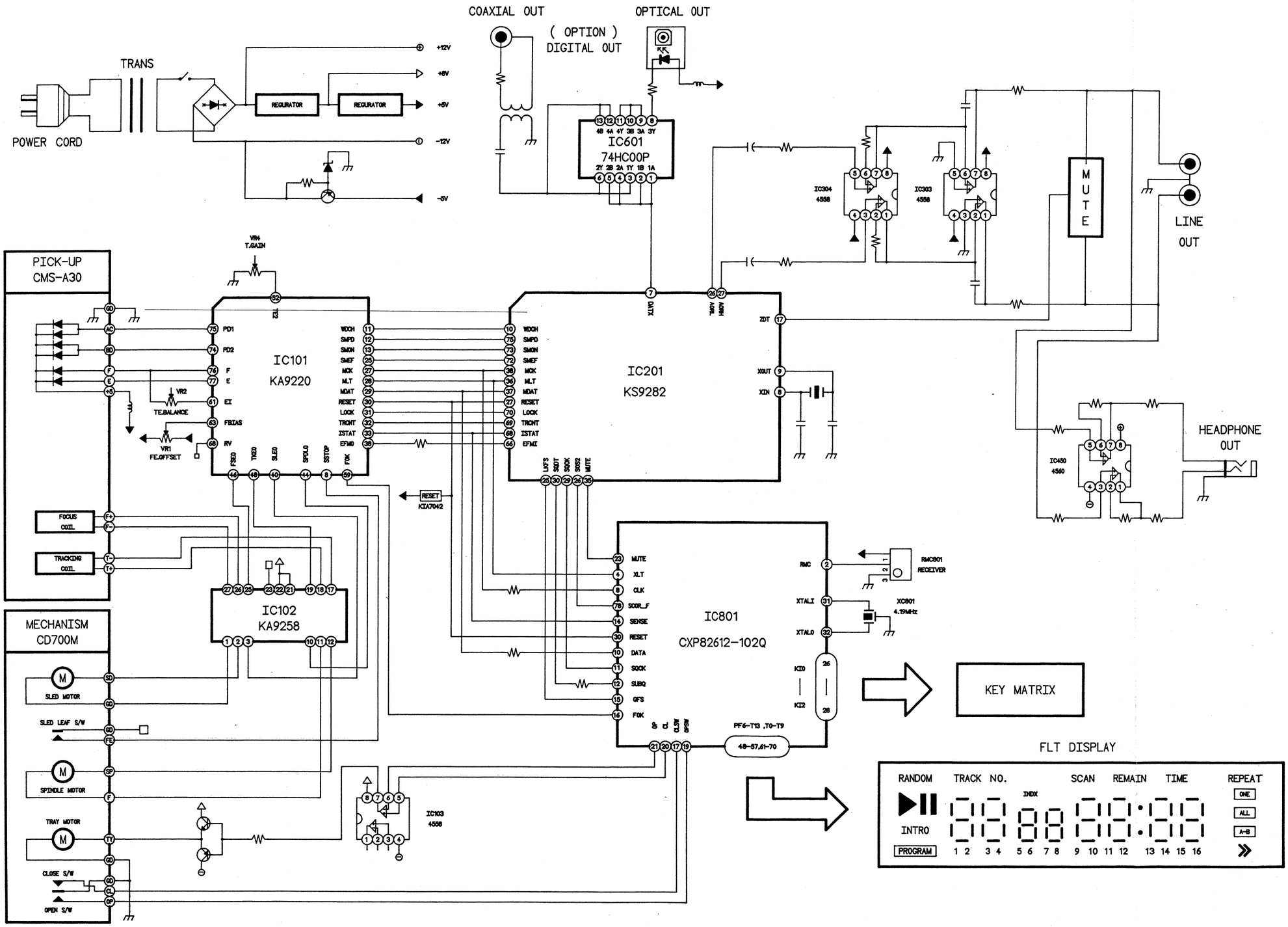
NOTE:
Part will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.



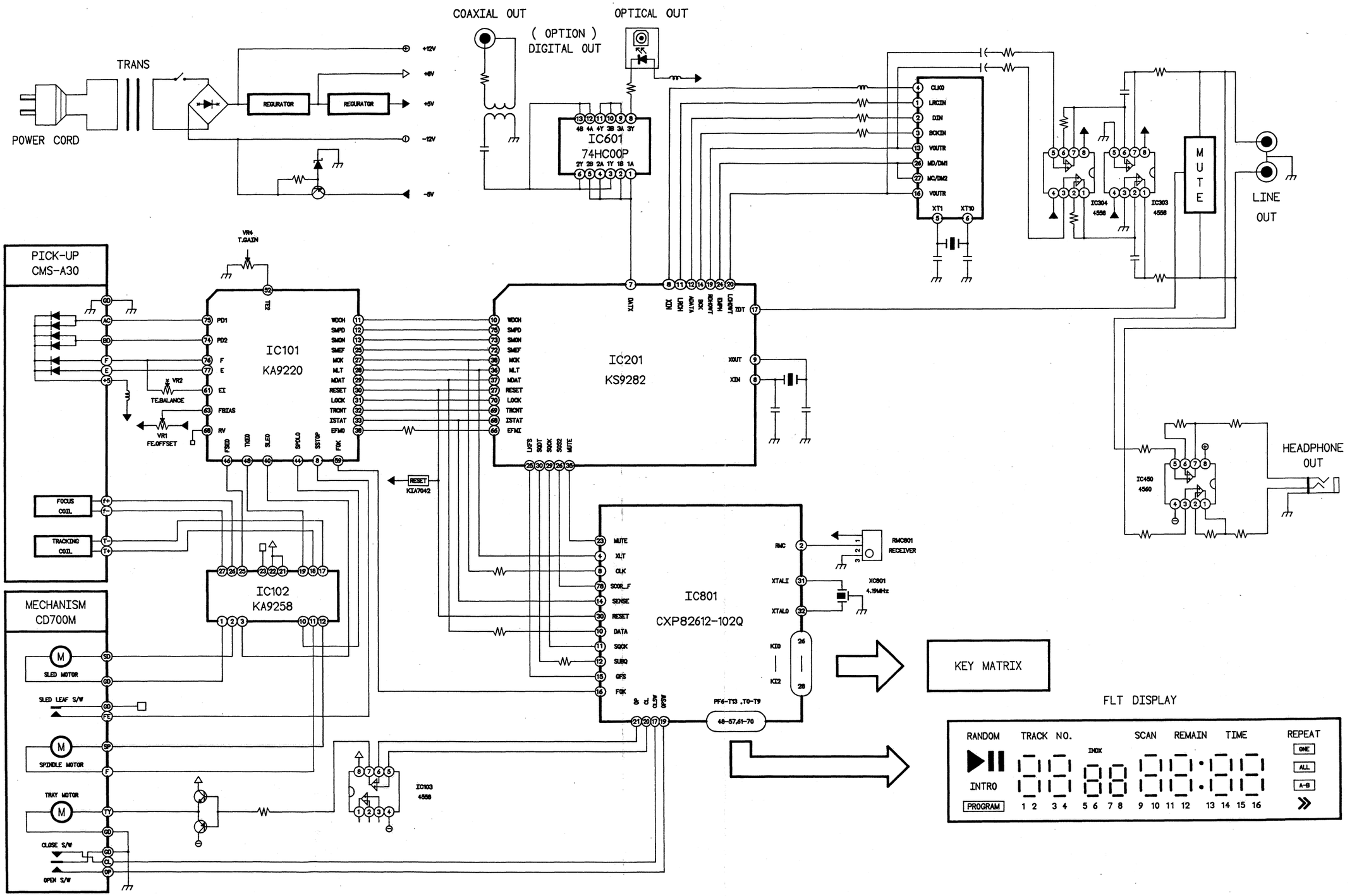
FINAL ASSEMBLY (CD-39/49)

NO	PART NO	Q'TY	DESCRIPTION
1	563000039000	1	BADGE(AKAI)
2	306700204000 306700205000	1	PANEL FRAME(CD-39) PANEL FRAME(CD-49)
3	306000512000	1	PANEL FRONT
4	702801581000	1	PHONE PCB ASS'Y
5	702801579000	1	FRONT PCB ASS'Y
6	470000003000	1	RING TRAY
7	431700183000	1	COVER TRAY
8	803800022000	1	BASE MECHA ASS'Y
11	702801568000	1	POWER PCB ASS'Y
12	438000014000	1	STOPPER AC CORD
13-E	L06100080000	1	AC CORD, KKP-419C
14	509000423000	1	BUTTON POWER
15	508000416000	1	KNOB BALANCE
16	507000423000	1	WINDOW DISPLAY
17	509700004000	1	BUTTON FUNCTION
19	405000225000	4	FELT
20	400000075000	2	FOOT
21	400000055000	2	FOOT
23	702801577000	1	MAIN PCB ASS'Y
25	431000388000	1	COVER UPPER
S1	B020HF6081B1	12	SCREW, TAP BH
S2	B020HF6083B1	13	SCREW, TAP BH
S3	B020HF6083F1	5	SCREW, TAP BH
S4	B020HF6101B1	8	SCREW, TAP BH
S5	B020HF6083F1	2	SCREW, TAP BH
S6	B020HF6171B1	2	SCREW, TAP BH
S7	1500HZ6081W1	1	SCREW, WASHER
S8	1500HZ8083L1	2	SCREW, TRANS
S9	B010HC6061B0	5	SCREW, TAP BH

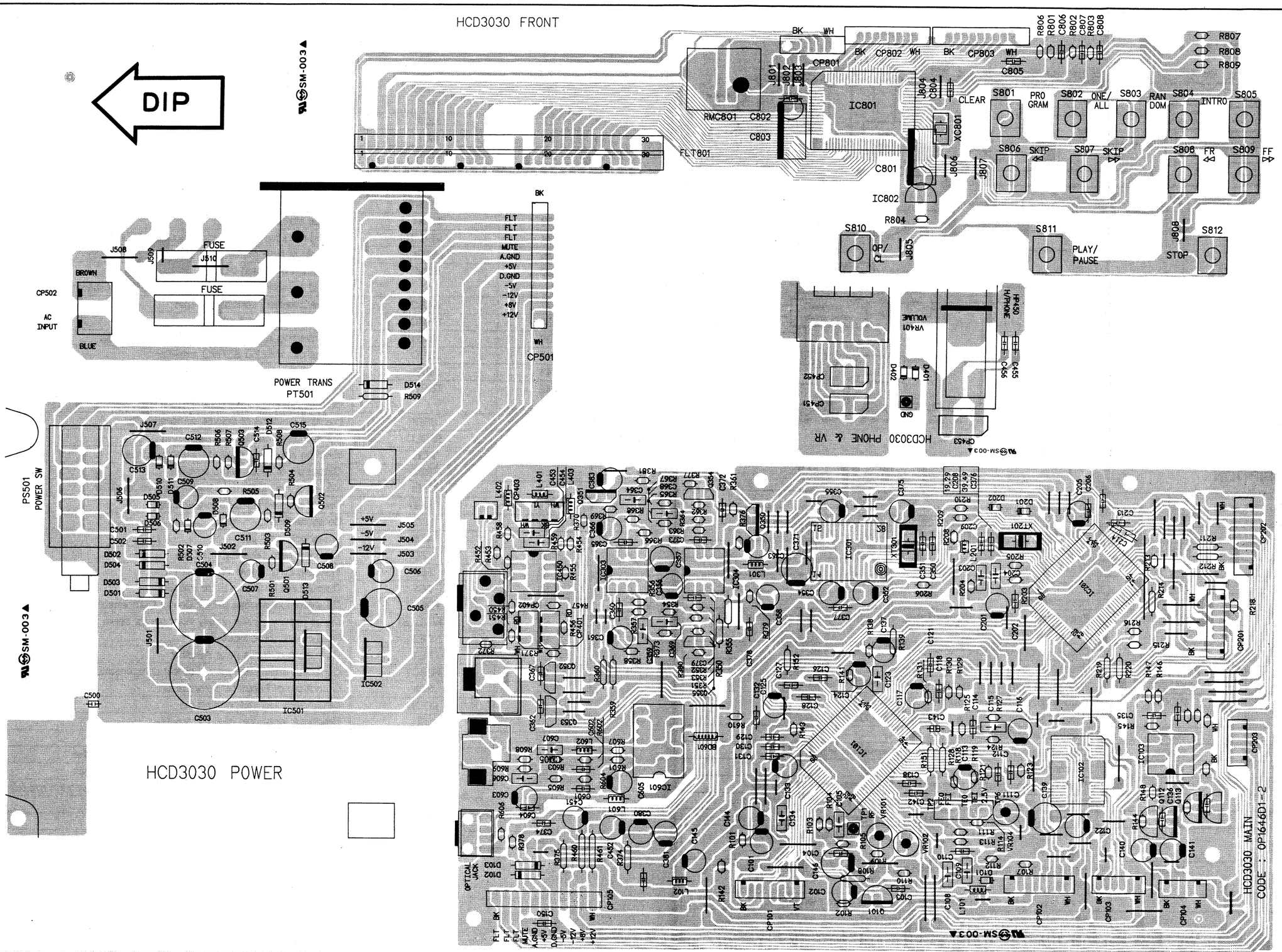
BLOCK DIAGRAM (CD-19/29)



BLOCK DIAGRAM (CD-39/49)

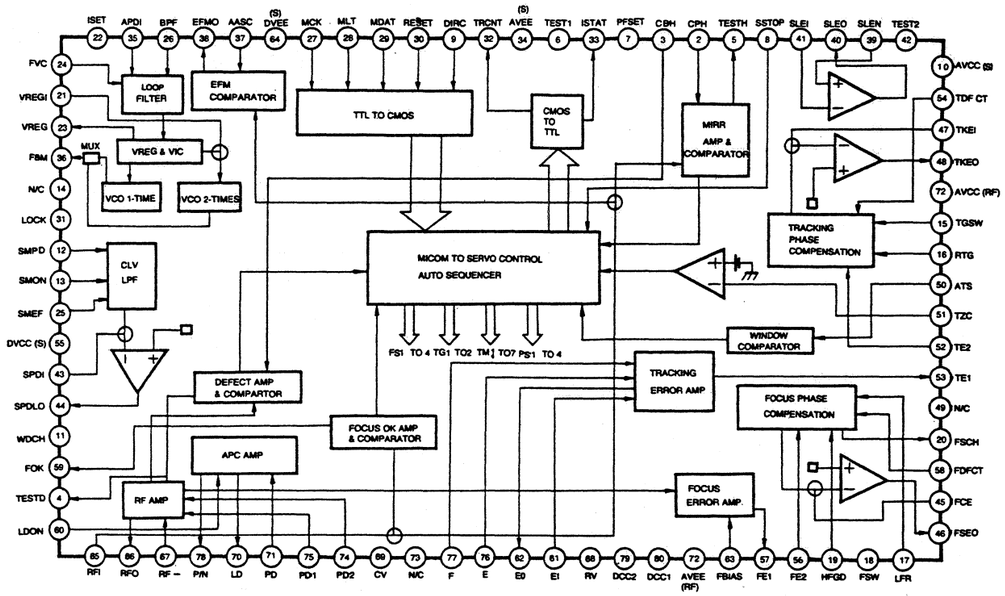


P.C.BOARD


HCD3030 FRONT
DIP
SM-003
CP801
CP802
CP803
RMC801
IC801
XC801
FLT801
S801 PRO GRAM
S802 ONE/ ALL
S803 RAN DOM
S804 INTRO
S805
S806 SKIP
S807 SKIP
S808 FR
S809 FF
S810 OP/ CL
S811 PLAY/ PAUSE
S812 STOP
IC802
R804
J508
J509
J510
FUSE
FUSE
BROWN
CP502
AC INPUT
BLUE
POWER TRANS PT501
D514
R509
CP501
FLT
FLT
FLT
MUTE
A.GND
+5V
D.GND
-5V
-12V
+8V
+12V
BK
WH
VR401 VOLUME
HCD3030 PHONE & VR
PS501 POWER SW
IC501
IC502
HCD3030 POWER
HCD3030 MAIN
CODE : 0P1646D1-2

INFORMATION ON ICS

KA9220
BLOCK DIAGRAM


ISET APDI BPF EFMO AASC DVEE(S) MCK MLT MDAT RESET DIRC TRCNT AVEE(S) TEST1 ISTAT PFSET CBH CPH TESTH SSTOP SLEI SLEO SLEN TEST2
FVC VREGI VREG FBM N/C LOCK SMPD SMON SMEF DVCC (S) SPDI SPDLO WDCH FOK TESTD LDON
AVCC (S) TDF CT TKEI TKEO AVCC (RF) TGSW RTG ATS TZC TE2 TE1 N/C FSCH FDFCT FCE FSEO
RFI RFO RF – P/N LD PD PD1 PD2 CV N/C F E Eo Ei RV DCC2 DCC1 AVEE (RF) FBIAS FE1 FE2 HFGD FSW LFR
LOOP FILTER
EFM COMPARATOR
TTL TO CMOS
CMOS TO TTL
MIRR AMP & COMPARATOR
MUX
VREG & VIC
VCO 1-TIME
VCO 2-TIMES
CLV LPF
MICOM TO SERVO CONTROL AUTO SEQUENCER
TRACKING PHASE COMPENSATION
WINDOW COMPARATOR
FS1 TO 4 TG1 TO2 TM TO7 Ps1 TO 4
DEFECT AMP & COMPARTOR
TRACKING ERROR AMP
FOCUS PHASE COMPENSATION
FOCUS OK AMP & COMPARATOR
APC AMP
RF AMP
FOCUS ERROR AMP

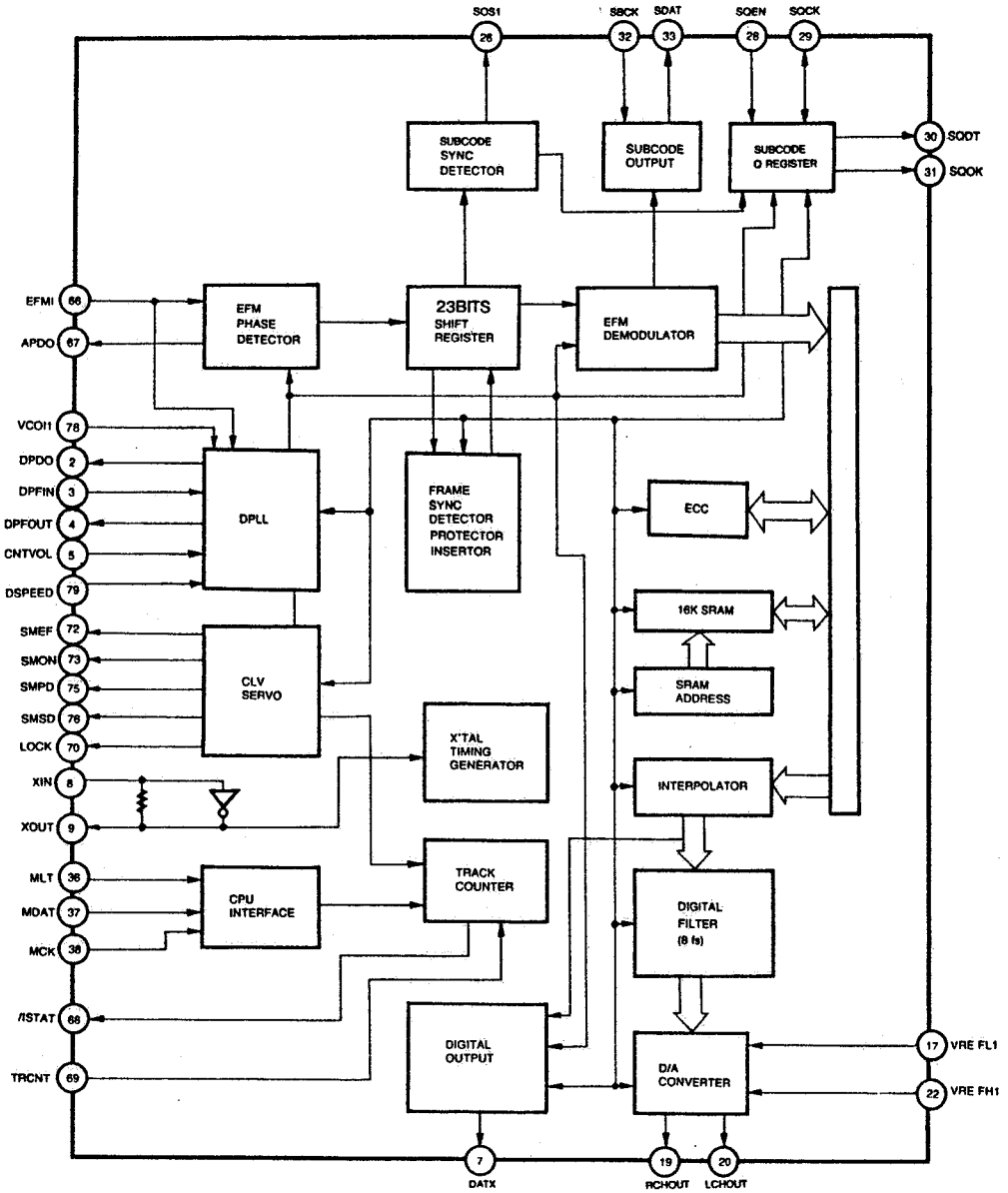
PIN DESCRIPTION

Pin No.	System	Description
1	AVEE (R)	Analog negative power supply input pin for RF part
2	CPH	Capacitor connection pin of mirror hold.
3	CBH	Capacitor connection pin of defect bottom-hold
4	TESTD	Defect test pin
5	TESTM	Mirror test pin
6	Test1	Input pin for test
7	PFSET	Peak frequency setting pin for focus, tracking compensation and fc (cut off frequency) of CLV LPF.
8	SSTOP	Check the position pin of pick-up whether inside or not.
9	DIRC	Direct 1 Track Jump Control Pin
10	AVCC (S)	Analog positive power supply input pin for SERVO part.
11	WDCH	Auto-sequencer clock-input pin (Normal speed=88.2KHz, Double speed=176.4KHz)
12	SMPD	Connection pin of DSP SMPD
13	SMON	Connection pin of DSP SMON, spindle servo ON at "H"
14	N/C	No connection pin
15	TGSW	Providing time constant to change the high frequency tracking gain
16	RTG	Capacitor connection pin to switch the tracking gain of high frequency
17	LFR	Capacitor connection pin to perform rising low bandwidth of focus servo loop
18	FSW	High frequency gain of focus servo loop can be changed by FS3 switch ON or OFF
19	HFGD	Reducing high frequency gain with capacitor connected between pin 18 and pin 19.
20	FSCH	Time constant external pin to generate focus search waveform
21	VREGI	External regulator voltage input pin for VCO
22	ISET	Determing the peak value of focus search, track jump and SLED kick

Pin No.	Symbol	Description
23	VREG	3.5V Regulator output pin
24	FVC	Pin connected esternal resistor to adjust free running frequency of VCO
25	SMEF	Providing an external LPF time constant of CLV SERVO Loop
26	BPF	Providing time constant for Loop filter of VCO
27	MCK	Clock input pin from micom
28	MLT	Latch input pin from micom
29	MDAT	Data input pin from micom
30	RESET	Reset input pin from micom, reset at "L"
31	LOCK	Pin for operation of the sled runaway prevention function at "L"
32	TRCNT	Track count output pin
33	ISTAT	Internal status output pin
34	AVEE (S)	Analog negative power supply input pin for SERVO part
35	APDI	Input pin of DSP phase comparison output (PHAS)
36	F8M	Output pin of analog VCO Normal speed=8.64MHz, Double speed=17.28MHz
37	AASC	Auto-Asymmetry control input pin
38	EFMO	EFM comparator output pin
39	SLEN	Non-inverting input pin of SLED SERVO amplifier
40	SLEO	Output pin of SLED SERVO amplifier
41	SLEI	Inverting input pin of SLED SERVO amplifier
42	TEST2	Test input pin to change speed mode Normal speed="H", Double speed="L"
43	SPDI	Inverting input pin of spindle servo amplifier
44	SPDLO	Spindle servo amplifier output pin
45	FCE	Inverting input pin of spindle servo amplifier.
46	FSEO	Output pin of focus servo amplifer
47	TKEI	Non-inverting input pin of tracking servo amplifier
48	TKEO	Output pinj of tracking servo amplifier
49	N/C	No connection
50	ATS	Anti-shock input pin
51	TZC	Tracking Zero Crossing input pin
52	TE2	Tracking Error Servo inputp pin
53	TE1	Output pin of tracking Error Amplifer
54	TDFCT	Capacitor Connection pin for Defect Compensation of tracking servo
55	DVCC (S)	Digital positive power supply input pin for servo part
56	FE2	Focus error servo input pin
57	FE1	Output pin of focus error Amplifer
58	FDFCT	Capacitor connection pin for defect compensation of focus servo
59	FOK	Output pin of Focus ok comparator.
60	LDON	Laser diode ON/OFF control pin
61	EI	Feedback inputn pin of E I-V Amplifier
62	EO	Output pin of E I-V amplifier
63	FBIAS	Bias pin of non-inverting input of focus error amplifier
64	DVEE (S)	Digital negative power supply input pin for servo part
65	RFI	Output Signal of RF summing amplifier is inputed through capacitor
66	RFO	Output pin of RF summing amplifier
67	FR–	Inverting input pin of RF summing amplifier
68	RV	Output pin of (AVCC+AVEE)/2 Voltage

Pin No.	Symbol	Description
69	CV	Bias input pin of Center Voltage buffer
70	LD	Output pin of APC amplifier
71	PD	Input pin of APC amplifier
72	AVCC (R)	Analog positive power supply input pin for RF part
73	N/C	No connection
74	PD2	INverting input pin of RF I-V AMP2
75	PD1	Inverting input pin of RF I-V AMP1
76	F	Inverting input pin of F I-V AMP
77	E	Inverting input pin of E I-V AMP
78	P/N	Selecting P-sub/N-sub of Lser diode
79	DCC2	Defect bottom-hold output is inputed through capacitor
80	DCC1	Output pin of defect bottom-hold

KS9282
BLOCK DIAGRAM

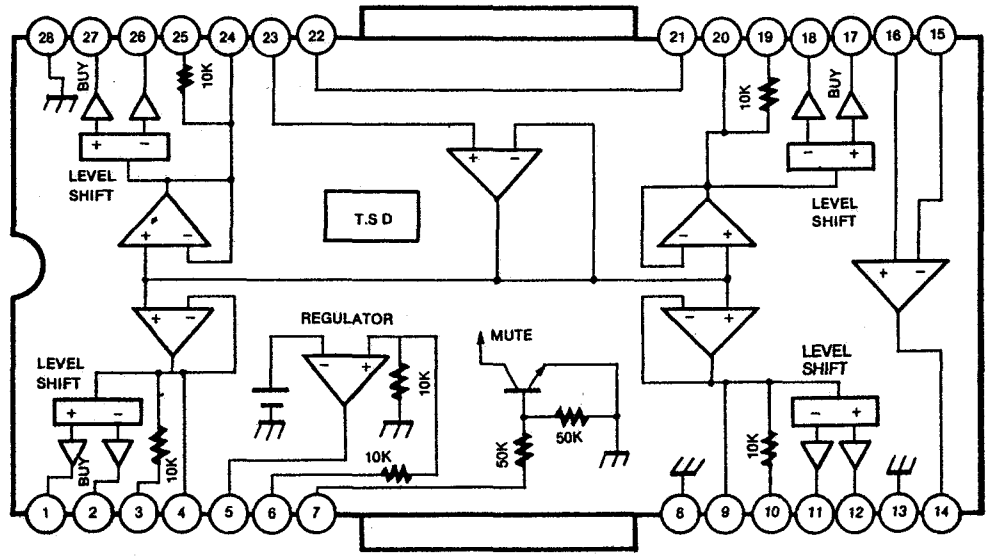


PIN DESCRIPTION

Pin No.	Symbol	I/O	Description
1	AVDD1		Analog Vcc 1
2	DPDO	O	Charge pump output for master PLL
3	DPFIN	I	Filter input for master PLL
4	DPFOUT	O	Filter output for master PLL
5	CNTVOL	I	VCO control voltage for master PLL
6	AVSS1		Analog Ground 1
7	DATX	O	Digital audio output
8	XIN	I	X-tal oscillator input
9	XOUT	O	X-tal oscillator output
10	WDCH	O	Word clock of 48 bit/SLOT (Normal speed=88.2KHz, Double speed=176.4KHz)
11	LRCH	O	Channel clock of 48 bit/SLOT (Normal speed=44.1KHz, Double speed=88.2KHz)
12	ADATA	O	Serial audio data output of 48 bit/SLOT (MSB first)
13	DVSS1		Digital Ground 1
14	BCK	O	Audio data Bit clock for 48 bit/SLOT (Normal speed=2.1168KHz, Double speed=4.2336KHz)
15	C1PO	O	C2 pointer for output audio data
16	VREFL2	I	Input terminal 2 of reference voltage "L"(Floating)
17	VREFL1	I	Input terminal 1 of reference voltage "L"(GND Connection)
18	AVDD2		Analog VCC2
19	RCHOUT	O	Right-Channel audio output through D/A Converter
20	LCHOUT	O	Left-Channel audio output through D/A Converter
21	AVSS2		Analog Ground 2
22	VREFH1	I	Input terminal 1 of reference voltage "H"(V_{DD} connection
23	VREFH2	I	Input terminal 2 of reference voltage "H"(Floating)
24	EMPH	O	Emphasis/Non-Emphasis Output ("H": Emphasis)
25	LKFS	O	The Lock Status output of frame sync
26	SOS1	O	Output of subcode sync signal (S0+S1)
27	RESET	I	System reset at "L"
28	SQEN	I	SQCK I/O Control ("L": internal CK, "H": external CK)
29	SQCK	I/O	Clock for output Subcode-Q data
30	SQDT	O	Serial output of Subcode-Q data
31	SQOK	O	The CRC check result signal output of subcode-Q
32	SBCK	I	CLOCK for output subcode-Q data
33	SDAT	O	Subcode serial data output
34	$DV_{DD}1$		Digital Vcc1
35	MUTE	I	Mute control Input("H": Mute ON)
36	MLT	I	Latch Signal Input from Micom
37	MDAT	I	Serial data Input from Micom
38	MCK	I	Serial Clock input from Micom
39	DB8	I/O	SRAM data I/O Port 8(MSB)
40	DB7	I/O	SRAM data I/O Port 7
41	DB6	I/O	SRAM data I/O Port 6
42	DB5	I/O	SRAM data I/O Port 5
43	DB4	I/O	SRAM data I/O Port 4
44	DB3	I/O	SRAM data I/O Port 3
45	DB2	I/O	SRAM data I/O Port 2

Pin No.	Symbol	I/O	Description
46	DB1	I/O	SRAM data I/O Port 1 (LSB)
47	C1F1	I/O	Monitoring output for C1 error correction (RA1)
48	C1F2	I/O	Monitoring output for C1 error correction (RA2)
49	C2F1	I/O	Monitoring output for C1 error correction (RA3)
50	C2F2	I/O	Monitoring output for C1 error correction (RA4)
51	C2FL	I/O	C2 decoder flag (High: When the processing C2 code is impossible correction state) (RA5)
52	/PBCK	I/O	Output of VCO/2 (Normal speed=4.3218MHz, Double speed=8.6436MHz) (RA6)
53	DV_{ss2}		Digital Ground 2
54	FSDW	I/O	Unprotected frame sync (RA7)
55	ULKFS	I/O	Frame sync protection state (RA8)
56	/JIT	I/O	Display of either RAM overflow or underflow for ±4 frame Jitter margin (RA9)
57	C4M	I/O	Only monitoring signal (Normal playback: 4.2336MHz) (RA 10)
58	C 16M	I/O	16.9344MHz signal output (RA11)
59	/WE	I/O	Terminal for test
60	/CS	I/O	Terminal for test
61	SEL 1	I	Mode Selection Terminal 1 (H: 33.8688MHz, L: 16.9344MHz)
62	SEL 2	I	Mode Selection Terminal 2 (H: APLL L: DPLL)
63	SEL 3	I	Mode Selection Terminal 3 (H: CDROM L: CDP)
64	SEL 4	I	Mode Selection Terminal 4 (H: Internal SRAM)
65	TEST	I	Test Terminal (L=Normal operating state)
66	EFMI	I	EFM Signal input
67	APDO	O	Charge Pump output for analog PLL
68	/ISTAT	O	The internal statur output
69	TRCNT	I	Tracking counter input signal
70	LOCK	O	Output signal of LKFS Condition sampled PBFR/16 (If LKFS is "H", Lock is "H". If the LKFS is sampled "L" at least 8 times by PBFR/16, Lock is "L")
71	PBFR	O	Write frame clock (Lock: 7.35KHz)
72	SMEF	O	LPF time constant control of the spindle servo error signal
73	SMON	O	ON/OFF control signal for spindle servo
74	DV_{DD2}		Digital Vcc 2
75	SMPD	O	Spindle Motor drive (Rough control in the CLV-S mode Phase control in the CLV-P mode)
76	SMSD	O	Spindle Motor drive (Velocity control in the CLV-P mode)
77	VC_{OO1}	I	Vco output signal (When the state is lock by means of PBFR, it is 8.643MHz)
78	V_{co11}	I	VCO input signal
79	DEPEED	O	Double speed mode control(H: Normal Speed, L: Double Speed)
80	APD02	O	Analog PLL Charge Pump output for Double Speed mode

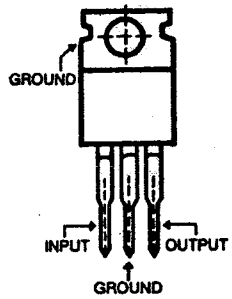
KA9258
BLOCK DIAGRAM

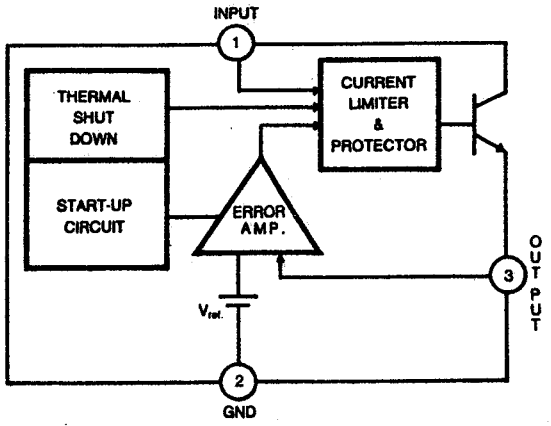


PIN DESCRIPTION

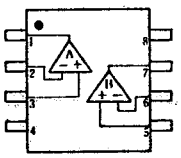
Pin No.	Symbol	I/O	Description
1	DO1.1	O	DRIVE OUTPUT
2	DO1.2	O	DRIVE OUTPUT
3	DI1.1	I	DRIVE INPUT
4	DI1.2	I	DRIVE INPUT
5	REG		REGULATOR
6	REO	O	REGULATOR OUTPUT
7	MUTE		MUTE
8	GND1		GROUND
9	DI2.1	I	DRIVE INPUT
10	DI2.2	I	DRIVE INPUT
11	DO2.1	O	DRIVE OUTPUT
12	DO2.2	O	DRIVE OUTPUT
13	GND2		GROUND
14	OPOUT	O	OPAMP OUTPUT
15	OPIN(−)	I	OPAMP INPUT(−)
16	OPIN(+)	I	OPAMP INPUT(+)
17	DO3.1	O	DRIVE OUTPUT
18	DO3.2	O	DRIVE OUTPUT
19	DI3.1	I	DRIVE INPUT
20	DI3.2	I	DRIVE INPUT
21	VCC1		SUPPLY VOLTAGE
22	VCC2		SUPPLY VOLTAGE
23	VREF		2.5V BIAS VOLTAGE
24	DI4.1	I	DRIVE INPUT
25	DI4.2	I	DRIVE INPUT
26	DO4.1	O	DRIVE OUTPUT
27	DO4.2	O	DRIVE OUTPUT
28	GND3		GROUND

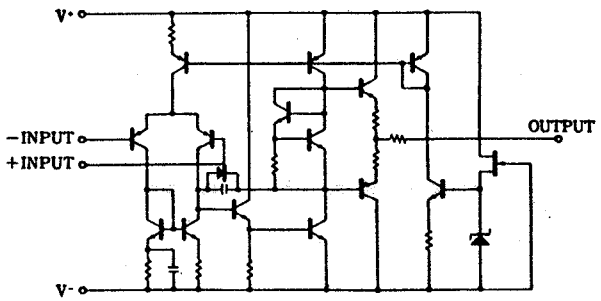
78XX



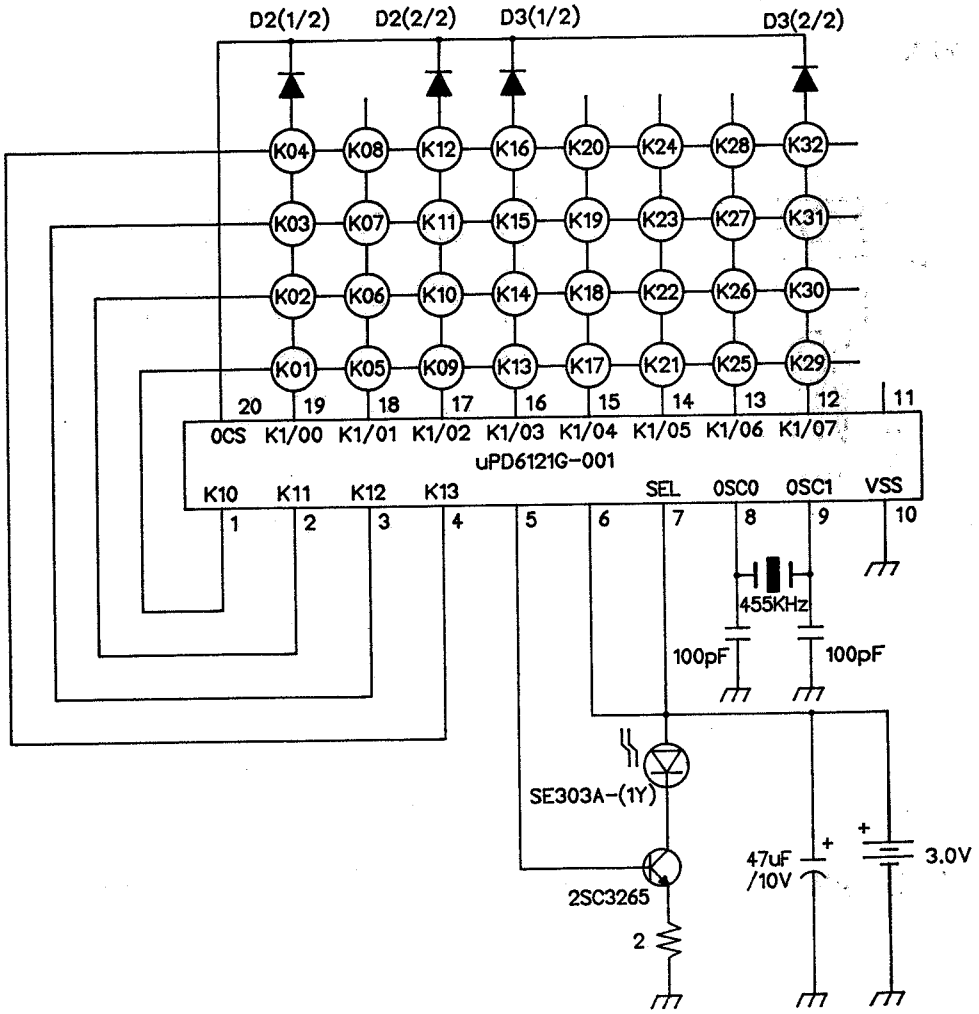


4558/4560



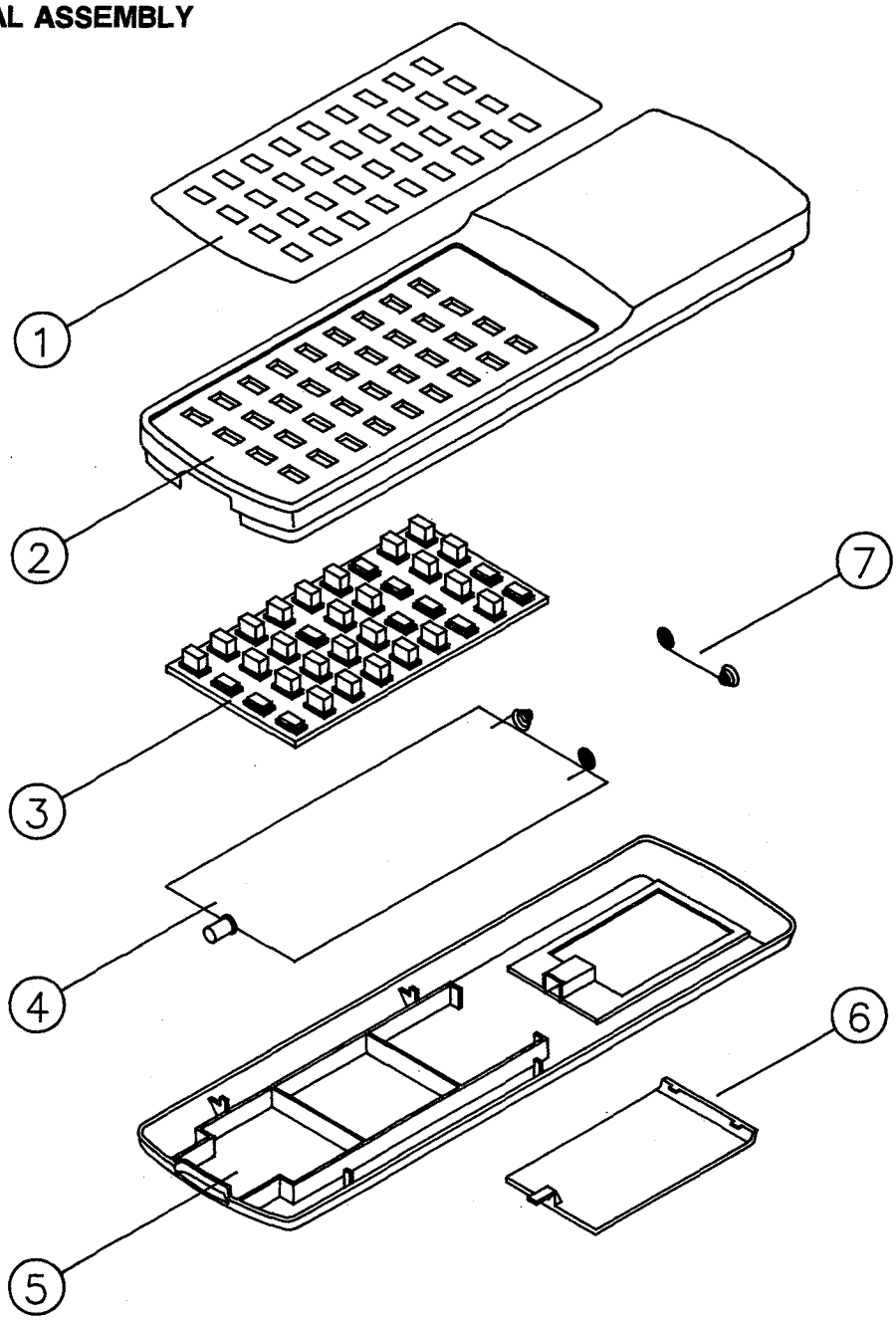


REMOTE CONTROL CIRCUIT DIAGRAM



KEY NO	COMMAND	KEY NO	COMMAND	KEY NO	COMMAND	KEY NO	COMMAND
K1	0	K9	8	K17	PROGRAM	K25	RANDOM
K2	1	K10	9	K18	———	K26	———
K3	2	K11	———	K19	———	K27	TIME MODE
K4	3	K12	———	K20	CLEAR	K28	ERPEAT ONE/ALL
K5	4	K13	———	K21	REPEAT A-B	K29	PLAY/PAUSE
K6	5	K14	+ 10	K22	OPEN/CLOSE	K30	SKIP NEXT
K7	6	K15	———	K23	SEARCH FF	K31	SKIP LAST
K8	7	K16	INTRO SCAN	K24	SEARCH FR	K32	STOP

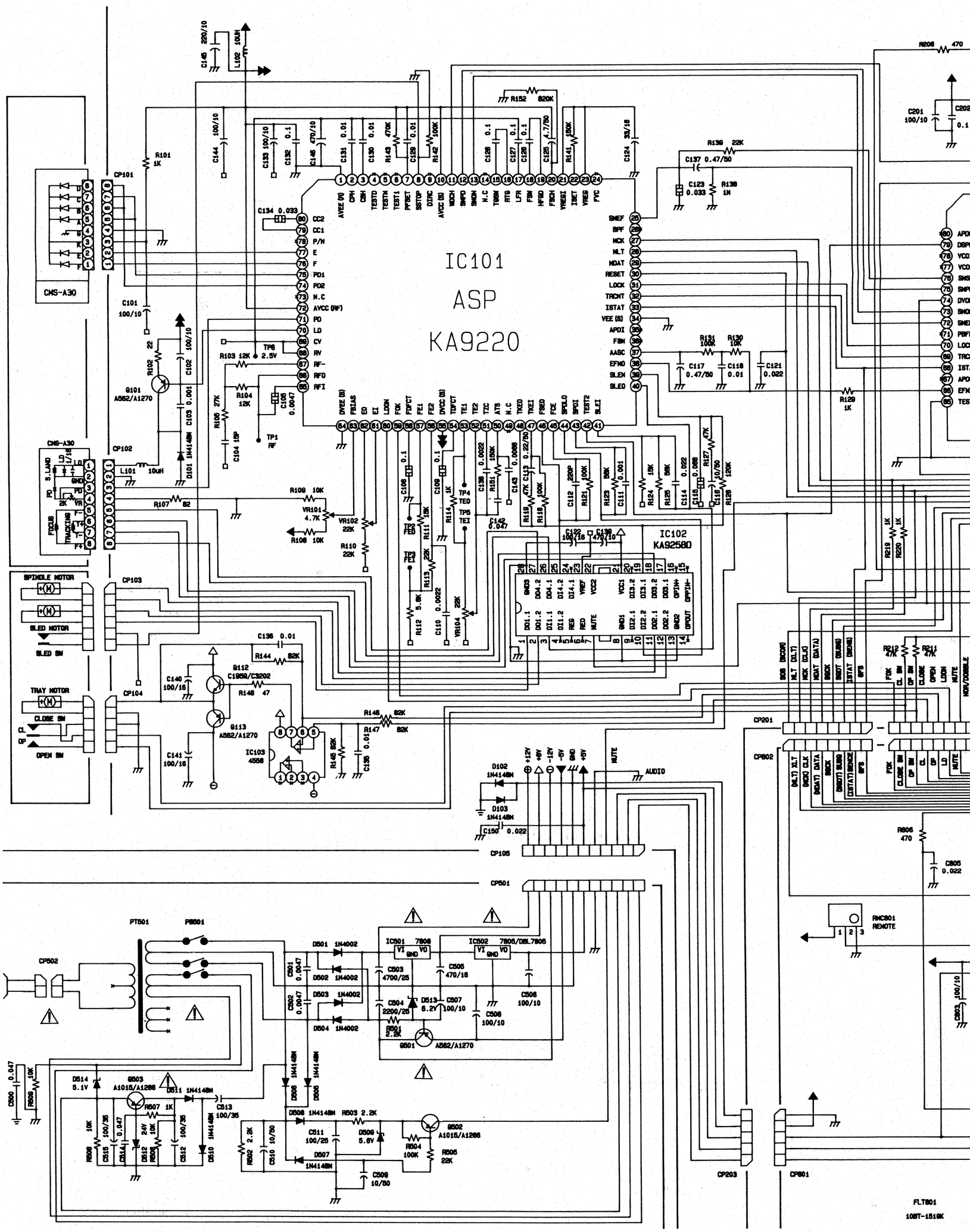
RC-C39 FINAL ASSEMBLY

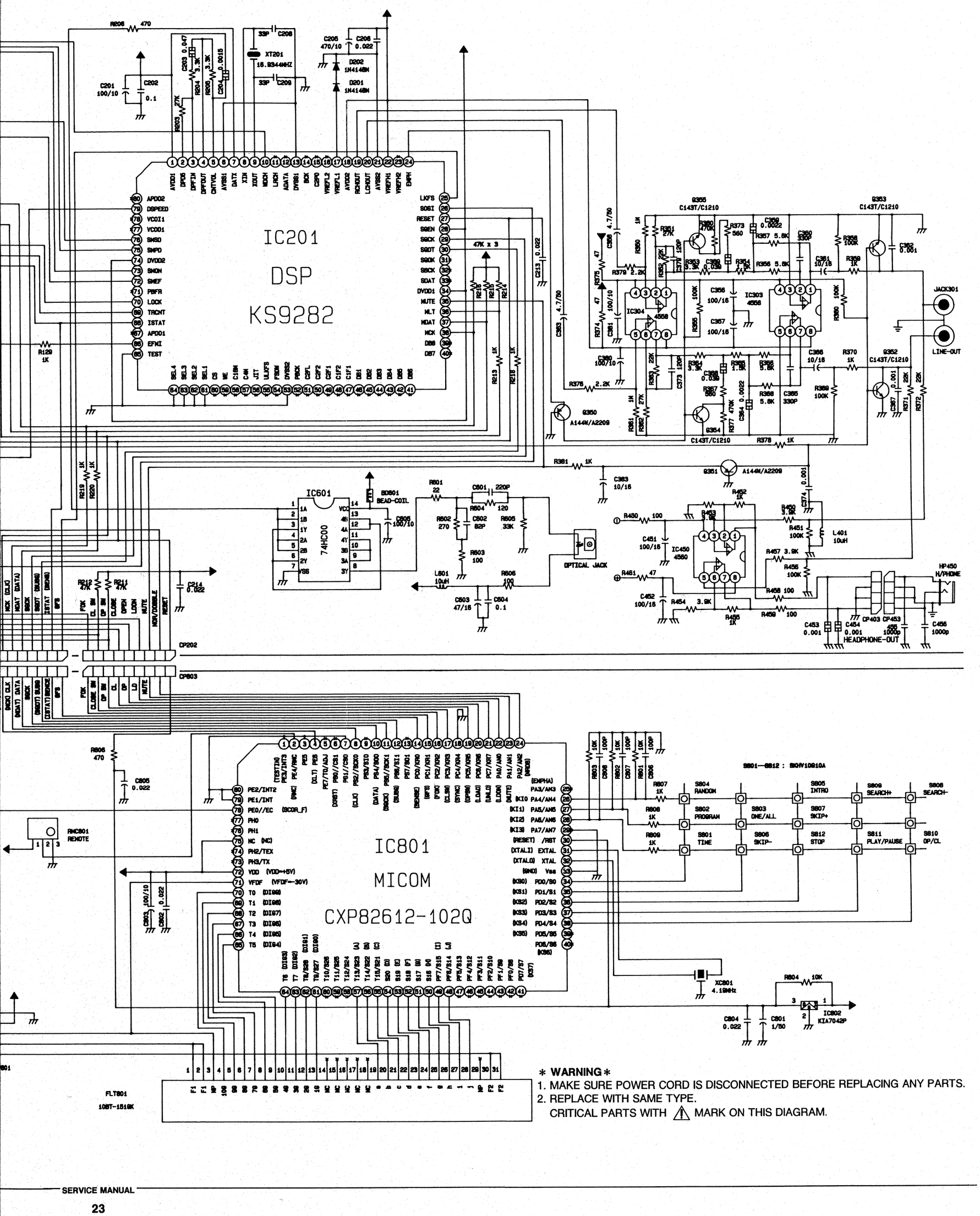


NO.	NAME
1	PLATE REMO
2	COVER TOP
3	PAD RUBBER
4	ASSY PCB
5	COVER BUTTOM
6	COVER BATTERY
7	SPRING BATTERY

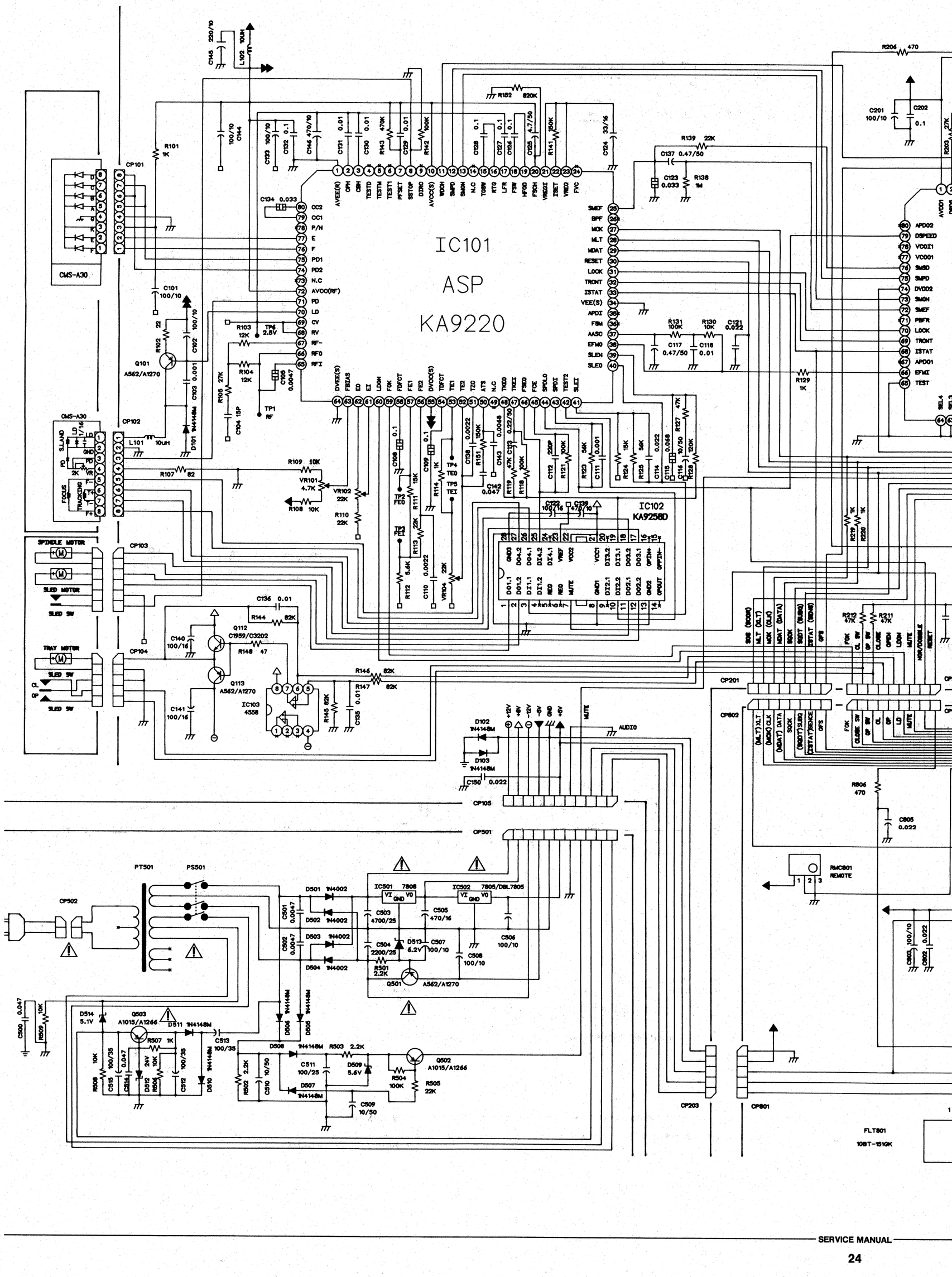
* Whene need to replace some part of remocon, please replace with ASS'Y REMOCON. (MODEL NO. : RC-C39)

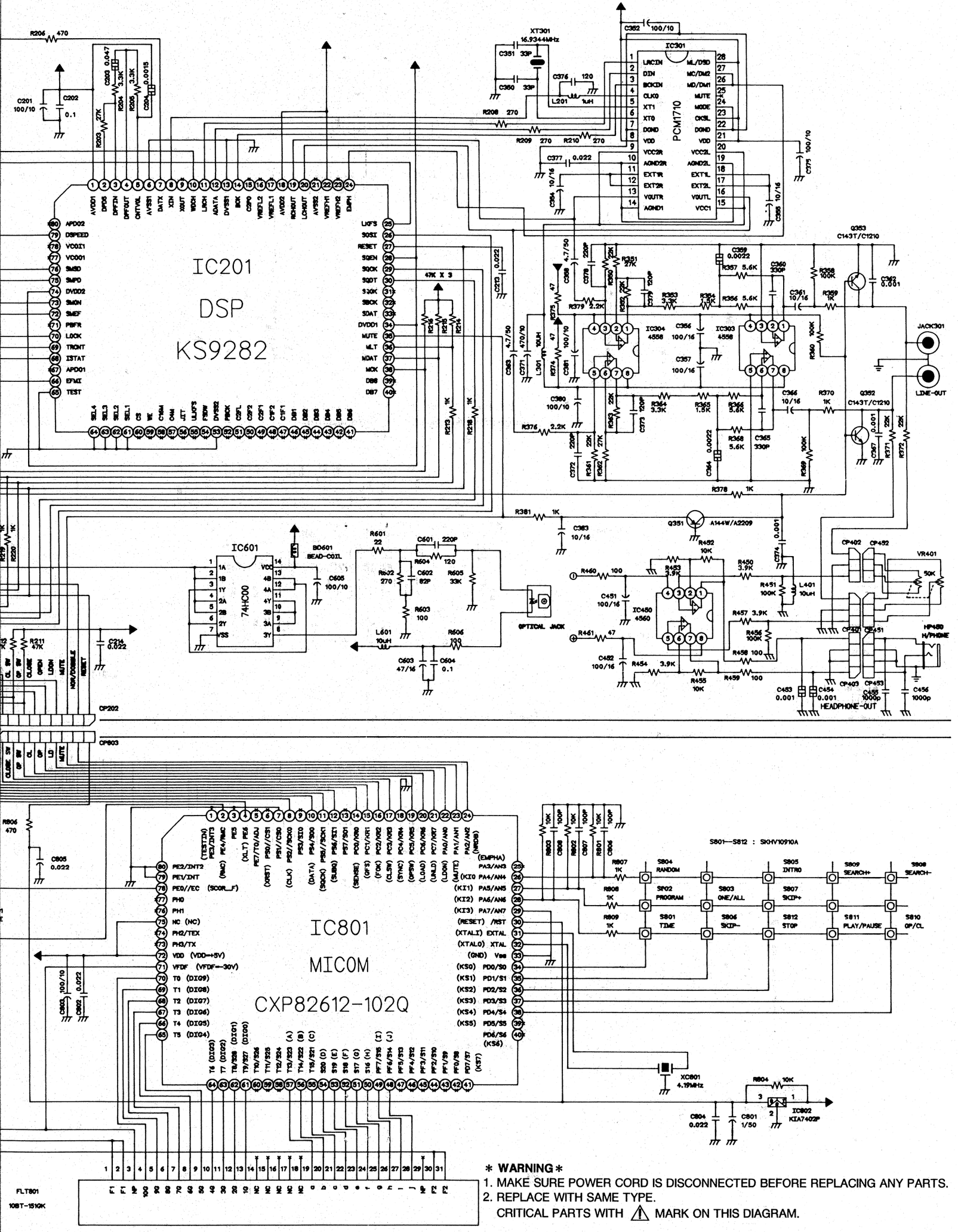
EMATIC DIAGRAM (CD-19/29)




IC201
DSP
KS9282
IC601
74HC00
IC801
MICOM
CXP82612-102Q
IC303
4558
IC304
4558
IC450
4560
JACK301
LINE-OUT
HP450
H/PHONE
HEADPHONE-OUT
OPTICAL JACK
REMOTE
FLT801
10BT-1516K
XT201
16.9344MHZ
XC801
4.19MHz
IC802
KIA7042P
CP202
CP803
* WARNING *
1. MAKE SURE POWER CORD IS DISCONNECTED BEFORE REPLACING ANY PARTS.
2. REPLACE WITH SAME TYPE.
CRITICAL PARTS WITH ⚠ MARK ON THIS DIAGRAM.

HEMATIC DIAGRAM (CD-39/49)





*** WARNING ***

1. MAKE SURE POWER CORD IS DISCONNECTED BEFORE REPLACING ANY PARTS.
2. REPLACE WITH SAME TYPE.
   CRITICAL PARTS WITH ⚠ MARK ON THIS DIAGRAM.